

Audit



Report

DOD EFFORTS TO IMPLEMENT YEAR 2000 COMPLIANCE FOR
ELECTRONIC DATA INTERCHANGE

Report No. 99-103

March 5, 1999

Office of the Inspector General
Department of Defense

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Acronyms

ANSI	American National Standards Institute
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
EDI	Electronic Data Interchange
JECPO	Joint Electronic Commerce Program Office
VAN	Value-Added Network
Y2K	Year 2000



INSPECTOR GENERAL
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March 5, 1999

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (COMMAND,
CONTROL, COMMUNICATIONS, AND
INTELLIGENCE)
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DIRECTOR, DEFENSE INFORMATION SYSTEMS
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AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit Report on DoD Efforts to Implement Year 2000 Compliance for
Electronic Data Interchange (Report No. 99-103)

We are providing this audit report for information and use. We considered informal management comments received from Defense Logistics Agency in response to a draft of this report.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Garold E. Stephenson at (703) 604-9332 (DSN 664-9332) (gstephenson@dodig.osd.mil) or Mr. Kent E. Shaw at (703) 604-9228 (DSN 664-9228) (kshaw@dodig.osd.mil). See Appendix D for the report distribution. The audit team members are listed inside the back cover.

A handwritten signature in black ink, reading "Robert J. Lieberman", is positioned above the printed name.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-103
(Project No. 8CC-0047)

March 5, 1999

DoD Efforts to Implement Year 2000 Compliance for Electronic Data Interchange

Executive Summary

Introduction. This is one in a series of reports being issued by the Inspector General, DoD in accordance with an informal partnership with the Chief Information Officer, DoD to monitor DoD efforts to address the year 2000 computing challenge. For a list of audit projects addressing the issue, see the year 2000 webpage on the IGnet at <http://www.ignet.gov>.

Objective. The primary audit objective was to determine whether the DoD electronic data interchange program complies with year 2000 requirements.

Results. The Military Services, the Defense Information Systems Agency, and the Defense Logistics Agency have made generally satisfactory progress in ensuring year 2000 compliance for their electronic data interchange systems. Twenty of 27 electronic data interchange systems identified by the Military Services, the Defense Information Systems Agency, and the Defense Logistics Agency were year 2000 compliant and one system, believed to be compliant, was being tested. Four of the non-compliant systems were expected to be compliant in February 1999, one in March 1999, and two in May 1999. One of the seven non-compliant systems was a mission-critical Defense Logistics Agency system. The Joint Electronic Commerce Program Office and the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) co-chaired electronic commerce/electronic data interface assessment workshops to identify DoD electronic commerce/electronic data interface Y2K implementation issues and to facilitate resolution among the Military Components. Additionally, all 25 currently approved value added network providers had signed modified license agreements certifying that their systems were Y2K compliant.

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Background

Problem Description. The year 2000 (Y2K) problem is the term most often used to describe the potential failure of information technology systems to process or perform date-related functions before, on, or after the turn of the century. The Y2K problem is rooted in the way that automated information systems record and compute dates. For the past several decades, systems have typically used two digits to represent the year, such as 98 representing 1998, to conserve on electronic data storage and reduce operating costs. However, the year 2000 is indistinguishable from the year 1900 with the two-digit format. As a result of the ambiguity, computers and associated system and application programs that use dates to calculate, compare, or sort could generate incorrect results when working with years following 1999. Calculation of Y2K dates is further complicated because the year 2000 is a leap year, the first century leap year since 1600. The computer systems and applications must recognize February 29, 2000, as a valid date.

DoD Y2K Management Plan. As the DoD Chief Information Officer, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued the "DoD Year 2000 Management Plan" (DoD Management Plan) in April 1997 and the most current version is dated December 1998. The DoD Management Plan provides the overall DoD strategy and guidance for inventorying, prioritizing, fixing, or retiring systems, and for monitoring progress. The DoD Chief Information Officer has overall responsibility for overseeing the DoD solution to the Y2K problem. The DoD Components are responsible for implementing the five-phase Y2K management process that is described in the DoD Management Plan. The DoD goals have been to complete implementation of Y2K compliant mission-critical systems by December 31, 1998 and other systems by March 31, 1999.

Executive Order. On February 4, 1998, the President issued Executive Order No. 13073, "Year 2000 Conversion," mandating that Federal agencies do what is necessary to ensure that no critical Federal program experiences disruption because of the Y2K computing problem. The Executive Order also requires that the head of each agency ensure that efforts to address Y2K issues receive the highest priority.

Electronic Data Interchange (EDI). EDI is commonly defined as the application-to-application transfer of business documents between computers in a predefined standard format. The Military Services, the Defense Information Systems Agency (DISA), and the Defense Logistics Agency (DLA) use EDI to expedite the routing of procurement, logistical, and financial transactions. EDI provides the opportunity to improve business processes, speed up cycle times, enhance working relationships, and improve quality and productivity. The Military Services, DISA, and DLA are responsible for the implementation of EDI Y2K certification.

Standard Formats for EDI. Standard formats for EDI within North America are developed by the Data Interchange Standards Association, under a charter by the American National Standards Institute (ANSI). The standards are known as the X12 standards, because they are issued by the ANSI X12 subcommittee that develops national standards for EDI. As the X12 standards are issued and endorsed by the Department of Commerce's National Institute of Standards and Technology, the ANSI standards become Government standards. In December 1997, the Data Interchange Standards Association issued standard X12 version 4010 to address the Y2K problem. This new standard expands all date fields to a fixed-length standard format (YYYYMMDD). Older versions of the X12 standard (revisions 3050 and later) provided a similar capability by offering an optional century field, which could be used to provide the same information.

Joint Electronic Commerce Program Office (JECPO). JECPO was established in January 1998, and is responsible for strategic implementation of electronic commerce policy in support of OSD principal staff assistants and other DoD Components. The JECPO is the DoD Executive Agent to support, facilitate, and accelerate the application of electronic business practices and associated information technologies to improve DoD processes, and to support weapons and combat systems throughout their life cycles. The JECPO is organized under both DISA and DLA, and receives policy direction and oversight from the DoD Chief Information Officer.

EDI Procurement Transactions. During FY 1998, the DoD Components processed 51,537 EDI procurement transactions as summarized in Table 1. By FY 2000, the Department anticipates that usage will be considerably higher.

Table 1. Total Procurement Transactions of the Federal Acquisition Computer Network for Fiscal Year 1998

<u>Service</u>	<u>Transactions</u>
Army	17,194
Navy	7,264
Air Force	26,547
Defense Logistics Agency and other DoD Components	532
Total	51,537

These procurement transactions resulted in 6,568 contract awards valued at \$118 million.

Objective

The primary audit objective was to determine whether the DoD electronic data interchange program complies with year 2000 requirements. See Appendix A for a discussion of the audit process and information on prior coverage related to the audit objectives.

Y2K Compliance for DoD EDI Systems

The Military Services, DISA, and DLA have made generally satisfactory progress in ensuring Y2K compliance for their EDI systems. Twenty of 27 EDI systems identified by the Military Services, DISA, and DLA were Y2K compliant and one system, believed to be compliant, was being tested. Four of the non-compliant systems were expected to be compliant in February 1999. One mission-critical DLA system was expected to be compliant in March 1999 and another DLA mission-critical system was being tracked against a May 1999 date. JECPO and the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) co-chaired EC/EDI interface assessment workshops to identify DoD EC/EDI Y2K implementation issues and to facilitate resolution among the Military Components. Additionally, all 25 currently approved Value Added Network (VAN) providers had signed modified license agreements certifying that their systems were Y2K compliant.

Y2K Corrective Actions Taken for EDI Systems

The Military Services, DISA, and DLA are using a technique called "windowing" to make existing applications Y2K compliant. Windowing involves the use of software or standard operating procedures to convert 2-digit years 00-49 to 4-digit years 2001-2049 and 2-digit years 50-99 to 4-digit years 1950-1999. As shown in Appendix B, all EDI systems had not fully implemented the new X12 revision 4010 standard, which incorporates a mandatory 4-digit year into the transactions. However, the windowing techniques should permit those systems that use older X12 revisions to properly convert dates. One EDI system, the Defense Fuels Automated Management System, did not have an adequate contingency plan. Contingency plans are required for mission-critical systems that will not be Y2K compliant by March 1999. This condition will be addressed separately in the Inspector General, DoD Audit of Defense Logistics Agency Fuel Systems (Project No. 9LB-9006). The JECPO and the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) co-chaired EC/EDI Y2K interface assessment workshops to identify DoD EC/EDI Y2K implementation issues and to facilitate resolution among the components.

Four mission-critical DLA systems were not projected to meet the DoD schedule for implementation by December 31, 1998, as shown in Table 2.

**Table 2. DLA Mission-Critical Systems
Not Meeting DoD Y2K Deadlines**

System Description	Implementation Date
Base Operating Support System	May 1999
Defense Integrated Subsistence Management System	January 1999
Mechanization of Contract Administration Services	January 1999
Defense Fuels Automated Management Systems	May 1999

Y2K Corrective Actions on VANs

All 25 of the currently approved VAN providers have signed modified license agreements certifying their systems are Y2K compliant. VANs are commercial service providers that provide communication of electronic data between DoD and its trading partners on a fee-for-service basis. Before a VAN can provide such services between the Government and its trading partners, the VAN must be tested and certified by the Government as meeting its communications requirements and must sign a VAN License Agreement delineating its responsibilities and expectations under the agreement. During April 1998, the Defense Information Technology Contracting Organization requested signatures for a modified license agreement that required all approved VANs to provide self-certifications that their systems were Y2K compliant. On September 28, 1998, the Defense Information Technology Contracting Organization terminated 3 of the 25 then-approved VANs that had not signed the modified agreement. We commend the decisive management action, which was appropriate in view of the seriousness of the year 2000 conversion challenge. Subsequently, two of the terminated VANs signed the agreement and were reinstated as approved VANs and an additional VAN was subsequently added that was certified as Y2K compliant. Appendix B lists approved VANs.

Conclusion

The Services, DISA, DLA, and the JECPO program managers are on track to determine Y2K compliance for all 27 of the Department's EDI systems by May 1999.

Appendix A. Audit Process

This is one in a series of reports being issued by the Inspector General, DoD in accordance with an informal partnership with the Chief Information Officer, DoD to monitor DoD efforts to address the Y2K computing challenge.

Scope and Methodology

We analyzed and validated the policies, procedures, and practices for implementing the Y2K program for EDI systems within the Services, DISA, and DLA. We performed the following work during our audit:

- Determined whether the Military Services, DISA, and DLA had developed the required contingency plans for EDI systems that would not be Y2K compliant by the OMB March 1999 deadline.
- Identified VANs that conduct EDI transactions for the Military Services and Defense agencies to determine if those VANs were Y2K compliant.
- Determined the status of implementation of the X12 version 4010 standard and assessed the impact if the X12 version 4010 was not implemented before the year 2000.
- Evaluated the impact of Y2K on implementation of the Standard Procurement System to replace legacy procurement systems.
- Made an overall assessment of the status of existing and planned systems to determine if sufficient progress was being made to meet year 2000 requirements.

DoD-Wide Corporate Level Government Performance and Results Act Goals.

In response to the Government Performance Results Act, the Department of Defense has established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting the objectives. This report pertains to achievement of the following objectives and goals.

Objective: Prepare now for an uncertain future.

Goal: Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war fighting capabilities **(DoD-3)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following objectives and goals.

- **Objective:** Become a mission partner.
Goal: Serve mission information users as customers. **(ITM-1.2)**
- **Objective:** Provide services that satisfy customer information needs.
Goal: Modernize and integrate DoD information infrastructure. **(ITM-2.2)**
- **Objective:** Provide services that satisfy customer information needs.
Goal: Upgrade technology base. **(ITM-2.3)**

General Accounting Office High-Risk Area. In its identification of risk areas, the General Accounting Office has specifically designated risk in resolution of the Y2K problem as high. This report provides coverage of that problem and of the overall Information Management and Technology high-risk area.

Use of Technical Assistance and Computer Processed Data. We did not use technical assistance or computer-processed data to perform this audit.

Audit Type, Dates, and Standards. We performed this program audit from August through December 1998 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD as well as related industries. Further details are available upon request.

Management Control Program. We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness in the FY 1998 Annual Statement of Assurance.

Summary of Prior Audits and Other Reviews

The General Accounting Office and the Inspector General, DoD have conducted multiple reviews related to Y2K issues. General Accounting Office reports can be accessed over the Internet at <http://www.gao.gov>. Inspector General, DoD reports can be accessed over the Internet at <http://www.dodig.osd.mil>.

Appendix B. Y2K Status of Electronic Data Interchange Systems

EDI Systems	Implementation Conventions	Compliant (Yes/No)	Transaction Sets	Remarks
<u>Army</u>				
Standard Army Automated Contracting System ¹	3010	Yes	836,840,843,850, 997	
Procurement Automated Data Document System ¹	3050	Believed compliant	840,843,850,860	Currently being tested
CONUS Freight Management System ²	3010, 3020 3050, 3070	Yes	602,824,864,858, 213,214	
Integrated Booking System ²	3030, 3060	Yes	300,303,301,315	
Transportation Operational Personal Property Standard System	3010, 3050	No	858	Expected to be compliant 2/99
<u>Navy</u>				
Integrated Technical Item Management and Procurement System ¹	3050 w/century field	Yes	840,843,850	
Navy Electronic Commerce on-line	3050 w/century field	Yes	840,843,850	

¹ System expected to be replaced by the Standard Procurement System.

² System designated by organization as mission-critical.

EDI Systems	Implementation Conventions	Compliant (Yes/No)	Transaction Sets	Remarks
<u>Air Force</u>				
Automated Contracts Preparation System ¹	2003, 3010	Yes	840,843,850,997	
Contract Writing ¹	3050	Yes	850,860	
Cargo Movement Operating System	3010, 3020, 3050	Yes	858,994,997	
Menu Assisted Data Entry System II ¹	3010	Yes	521,810,820,836, 840,843,850,857, 864,997	
<u>Defense Logistics Agency</u>				
Base Operations Support System ²	3050	No	850,855	Expected to be compliant 5/99
Defense Reutilization and Marking Automated Information System ²	4010	Yes	856,861	
Defense Fuels Automated Management System ²	3010	No	810,824,832,997	Expected to be compliant 5/99
Defense Integrated Subsistence Management System ²	3040 3050	Yes	810,832,850,861, 864,838,997 810,997	
Defense Logistics Agency Pre-Award Contracting System ^{1, 2}	3050	No	824,836,840,843, 850,997	Expected to implement 3/99
Distribution Standard System ²	3050	Yes	858,214,994 997	
Federal Logistics Information System ²	3070	Yes	824,838,997	
Hazardous Materiel Information System ²	3070	Yes	848,997	
Mechanization of Contract Administration Services ^{1, 2}	3050	Yes	810p,856,850, 860	

EDI Systems	Implementation Conventions	Compliant (Yes/No)	Transaction Sets	Remarks
Paperless Order Placement System	3050, 3010, 2002, 2003	No	850,997	Expected to be compliant 2/99
Electronic Procurement Program Interface	3050	No	850, 855, 856,860,865,997	Expected to be compliant 2/99
Medical Automated Long-term	2000, 2003, 3010, 3030, 3050	No	850,855,997	Expected to be compliant 2/99
Standard Procurement System ²	3050	Yes	836,840,843,850, 855,860,865, 810,810	
Standard Automated Materiel Management System Procurement by Electronic Data Exchange	3010	Yes	840,843,850,856, 997	
<u>Defense Information Systems Agency</u>				
Electronic Commerce Processing Node ²	3050	Yes	810,824,836,840, 843,850,860	
Central Contractor Registration ²	4010	Yes	838,838C,864	

Appendix C. Approved VANS that Have Provided Y-2K Certifications*

Value Added Networks	Self-Certified as Y2K Compliant (Yes/No)
Advanced Communications Systems	Yes
Advanced Logic Resources, Inc.	Yes
Advantis	Yes
American Logistics Information Corporation	Yes
Angles Inc.	Yes
Arend Endustriyel Danismanlik	Yes
CACI Inc.	Yes
Complexity Simplified Inc.	Yes
Computer Network Corporation	Yes
Datamatix	Yes
Eloco Inc.	Yes
GAP Instrument Corporation	Yes
General Electric Information Services, Inc.	Yes
Government Procurement Assistance Service, Inc.	Yes
Harbinger Corporation	Yes
Intervan, Inc.	Yes
L.E. Pernell and Associates	Yes
Loren Data Corp.	Yes
Sales Opportunity Services, Inc.	Yes
Sidereal Corporation	Yes
Simplix	Yes
Softshare	Yes
Technology Management Programs Inc.	Yes
TPS, Inc.	Yes
Vansat	Yes

* VANS that did not provide the Y2K certifications were terminated on September 28, 1998.

Appendix D. Report Distribution

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Senate Subcommittee on Defense, Committee on Appropriations
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Senate Committee on Governmental Affairs
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House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
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House Subcommittee on Government Management, Information, and Technology,
Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International
Relations, Committee on Government Reform and Oversight
House Committee on Government Reform

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